Can management of our water resources ameliorate exposure to cyanotoxins?

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Abstract. Water resources including reservoirs, rivers, and wetlands have been managed for the purposes of flood control, drinking water supplies, and navigation. However, our management of these resources may influence the factors that affect the occurrence of algae that produce harmful toxins. While significant efforts have focused on identification, toxicity, risk assessment, and exposure assessment, this presentation will focus on the evaluation of current water resource management practices. Currently, reservoirs are managed for the purposes of flood control, drinking water supply, navigation, and recreation. Additional practices have included managing reservoirs to mitigate releases of nutrients (i.e., nitrogen and phosphorous). Because a variety of private and public stakeholders use waterways and water bodies for many different activities, management of algal blooms is a challenging task. Our presentation will examine case studies where algal toxins have become a problem in reservoirs to determine factors that may influence algal blooms and identify exposure pathways for human and ecological receptors. Our presentation will be based on the surveys that we have developed and administered to identify current challenges, management techniques, and involvement by resource agencies, as well as on the extensive review of completed and ongoing studies of observed harmful impacts. The application of multi-criteria decision analysis tools and other management techniques to algal bloom control will be discussed.